

## Today's Topics:

NASA Prediction Bulletins  
NASA Prediction Bulletins: Space Shuttle

-----

Date: Sat, 21 Oct 89 17:36:45 EDT  
From: tkelso@afit-ab.arpa (TS Kelso)  
Subject: NASA Prediction Bulletins

The most current orbital elements from the NASA Prediction Bulletins are carried on the Celestial RCP/M, (513) 427-0674, and are updated several times weekly. Documentation and tracking software are also available on this system. As a service to the satellite user community, the most current of these elements are uploaded weekly to sci.space. This week's elements are provided below. The Celestial RCP/M may be accessed 24 hours/day at 300, 1200, or 2400 baud using 8 data bits, 1 stop bit, no parity.

- Current NASA Prediction Bulletins #589 -  
STS-34

1 20297U 89 84 A 89293.96344341 -.00055380 00000-0 -22396-3 0 128  
2 20297 34.3203 133.0132 0025467 214.7398 145.1998 15.84902906 368

Alouette 1

1 00424U 89288.13049099 0.00000290 33831-3 0 2376  
2 00424 80.4656 167.6470 0022506 181.0979 179.0138 13.67213047349203

SOLRAD R/B

1 00727U 64001 A 89286.20066989 .00000438 00000-0 36426-3 0 3061  
2 00727 69.9069 203.0572 0015260 297.6819 62.2737 13.93597640309536

Cos 185 R/B

1 03019U 67104 B 89290.81833028 .00011992 00000-0 81596-3 0 4698  
2 03019 64.0423 84.8820 0206120 212.5364 146.2951 14.90933328123352

ATS 3

1 03029U 67111 A 89266.35100633 -.00000074 00000-0 99999-4 0 2592  
2 03029 12.8638 23.3743 0017010 199.4187 160.5377 1.00272430 80123

Cosmos 398

1 04966U 71 16 A 89290.87698357 .00072293 15193-5 45189-3 0 1664  
2 04966 51.5153 107.8550 2454264 65.0859 318.4443 10.66581867565374

Starlette

1 07646U 89290.49217025 -.00000013 00000-0 37619-4 0 9941  
2 07646 49.8234 36.0899 0206368 109.9097 252.4157 13.82122530742219

LAGEOS

1 08820U 89292.11462757 0.00000006 0 9041  
2 08820 109.8477 272.5305 0044814 289.7934 69.8071 6.38664389 58549

GOES 2

1 10061U 89290.43067823 -.00000003 0 3175  
2 10061 7.4592 66.6976 0007365 167.9380 191.8916 1.00272280 6601

GPS-0001

1	10684U		89290.11418285	0.00000010		10000-3	0	2422
2	10684	63.6352	97.0643	0112555	197.6017	162.0125	2.00559121	70970
GPS-0002								
1	10893U		89289.08027412	-.00000027			0	462
2	10893	64.4771	337.9555	0154991	27.5401	333.3482	2.00553104	83778
GOES 3								
1	10953U		89290.48245228	0.00000087		10000-3	0	7559
2	10953	6.3356	69.8452	0005463	315.5969	44.4587	1.00279742	2166
SeaSat 1								
1	10967U		89290.51839196	0.00001539		58355-3	0	1801
2	10967	108.0183	179.6478	0002100	242.8663	117.2293	14.34931207591635	
GPS-0003								
1	11054U		89288.39132225	-.00000026			0	1127
2	11054	64.0210	334.3691	0055597	120.3668	240.2570	2.00563309	80772
GPS-0004								
1	11141U		89287.98945477	0.00000010			0	2212
2	11141	63.6107	97.0298	0055712	320.3390	39.2771	2.00567883	79462
NOAA 6								
1	11416U		89290.01102730	0.00001671		71480-3	0	9150
2	11416	98.5156	283.6143	0012257	108.9781	251.2804	14.26079225535268	
GPS-0005								
1	11690U		89282.63932464	0.00000011			0	8600
2	11690	64.0797	99.1291	0108965	202.9146	156.6375	2.00558728	85212
Solar Max								
1	11703U		89291.84570485	0.00210463		12534-2	0	1491
2	11703	28.4961	113.7140	0002832	41.5363	318.5481	15.76174736539192	
GPS-0006								
1	11783U		89288.44585494	-.00000026			0	9793
2	11783	63.8215	333.9896	0142405	61.6495	299.8551	2.00570592	69414
GOES 4								
1	11964U	80 74 A	89289.80057767	-.00000138	00000-0	00000 0 0		922
2	11964	5.8072	72.1609	0032529	100.1226	260.3598	0.99230917	3234
GOES 5								
1	12472U		89291.32392278	-.00000249		10000-3	0	7673
2	12472	2.8511	79.0051	0002082	188.2058	171.8611	1.00263274	29822
SME								
1	12887U	81100 A	89290.12470474	.00028404	00000-0	86501-3	0	3404
2	12887	97.6741	320.5674	0002541	146.9922	213.1477	15.33953080443816	
Meteor 2-08								
1	13113U		89289.09136005	0.00000259		22253-3	0	6707
2	13113	82.5418	322.6692	0016745	80.5050	279.8039	13.84060061381964	
Salyut 7								
1	13138U		89291.73086870	0.00031700		62624-3	0	8244
2	13138	51.6083	70.3443	0000595	208.9174	151.1485	15.46849060427283	
LandSat 4								
1	13367U	82 72 A	89289.97233091	.00001943	00000-0	44102-3	0	1352
2	13367	98.1990	351.8256	0002713	156.0995	204.0331	14.57133987385889	
Meteor 2-09								

1 13718U 89292.06955259 0.00000767 39712-3 0 8264  
 2 13718 81.2462 160.3575 0056816 7.3473 352.8528 14.13336420353058  
 IRAS  
 1 13777U 89280.48282262 0.00000505 37564-3 0 6833  
 2 13777 99.0372 116.0263 0013171 8.6058 351.5316 13.98651051 11618  
 Cosmos 1447  
 1 13916U 83 21 A 89290.11960730 .00000242 00000-0 24520-3 0 6552  
 2 13916 82.9497 191.7248 0039637 95.6720 264.8957 13.73962830329298  
 TDRS 1  
 1 13969U 83 26 B 89287.34604942 -.00000205 00000-0 00000 0 0 8517  
 2 13969 3.8642 67.7529 0005036 156.4158 204.0737 1.00267641 90619  
 GOES 6  
 1 14050U 89291.52646355 0.00000117 0 252  
 2 14050 1.6120 80.2974 0001751 182.5248 178.1793 1.00283039 7847  
 OSCAR 10  
 1 14129U 89287.58388419 0.00000077 0 4343  
 2 14129 25.9416 239.2885 6033696 84.7181 337.3439 2.05879414 19670  
 GPS-0008  
 1 14189U 89289.03315508 0.00000009 10000-3 0 6689  
 2 14189 63.2507 95.5673 0138636 215.2231 143.8672 2.00564784 45866  
 Meteor 2-10  
 1 14452U 89290.17339746 0.00001122 47643-3 0 7804  
 2 14452 81.1659 171.2881 0095747 104.6867 256.4948 14.22370434309886  
 LandSat 5  
 1 14780U 89292.06102884 0.00002171 49082-3 0 9502  
 2 14780 98.1526 351.8385 0002123 190.3995 169.7088 14.57178629299605  
 UOSAT 2  
 1 14781U 89291.21488311 0.00003233 62238-3 0 5314  
 2 14781 97.9895 346.3911 0012505 297.4586 62.5346 14.64170039300544  
 LDEF  
 1 14898U 89291.63734475 0.00075853 84054-3 0 158  
 2 14898 28.5059 21.1249 0001776 159.3385 200.7919 15.61513424310694  
 GPS-0009  
 1 15039U 89289.09368585 0.00000008 0 7453  
 2 15039 62.9784 94.7744 0014754 244.2418 115.6167 2.00564086 39142  
 Cosmos 1574  
 1 15055U 84 62 A 89288.91573396 .00000209 00000-0 21347-3 0 7904  
 2 15055 82.9531 242.3297 0026449 285.6901 74.1346 13.73278694266549  
 Meteor 2-11  
 1 15099U 89289.42971951 0.00000158 13321-3 0 9703  
 2 15099 82.5271 269.9404 0011749 260.1350 99.8489 13.83713281266888  
 GPS-0010  
 1 15271U 89288.99346744 -.00000027 0 7184  
 2 15271 63.3139 333.6677 0102477 321.5214 37.8247 2.00569010 36257  
 Cosmos 1602  
 1 15331U 89288.28838741 0.00003756 53735-3 0 996  
 2 15331 82.5375 227.5380 0026326 52.7490 307.6141 14.76180637271935  
 NOAA 9

1 15427U 89290.21678526 0.00001208 67805-3 0 4426  
2 15427 99.1552 279.6367 0015088 334.8352 25.2079 14.12221158249672  
Meteor 2-12  
1 15516U 89291.85370671 0.00000679 59868-3 0 1244  
2 15516 82.5370 206.3844 0017560 124.6953 235.5850 13.84190643238168  
Cosmos 1686  
1 16095U 89289.72803224 0.00035549 70387-3 0 3903  
2 16095 51.6087 80.2277 0001432 196.5336 163.5197 15.46726000228071  
GPS-0011  
1 16129U 89288.65174694 0.00000009 0 3582  
2 16129 63.7693 95.5680 0120952 149.7401 210.9818 2.00562376 29453  
Meteor 3-1  
1 16191U 89291.59437207 0.00000043 10000-3 0 8678  
2 16191 82.5480 148.5075 0020131 354.1208 5.9663 13.16880059191761  
Meteor 2-13  
1 16408U 89292.00599121 0.00000246 21123-3 0 5388  
2 16408 82.5341 121.1491 0016243 318.8400 41.1535 13.84224200192684  
Mir  
1 16609U 89292.08664307 0.00127653 17154-2 0 1441  
2 16609 51.6177 101.4800 0014670 226.4729 133.4365 15.56852770210492  
SPOT 1  
1 16613U 89292.02694494 0.00001078 52409-3 0 6372  
2 16613 98.7277 4.9611 0001393 138.0112 222.1145 14.20055080 29702  
Meteor 2-14  
1 16735U 89292.00135554 0.00000328 28451-3 0 3297  
2 16735 82.5392 148.0383 0015658 27.5504 332.6476 13.83980882171581  
Cosmos 1766  
1 16881U 89292.08421549 0.00004242 61094-3 0 7685  
2 16881 82.5143 283.4000 0024173 62.4880 297.8782 14.75946200173564  
EGP  
1 16908U 89280.48807213 -.00000027 11644-3 0 1534  
2 16908 50.0099 312.8522 0011367 273.2446 86.7089 12.44380844143394  
FO-12  
1 16909U 89280.46642003 -.00000025 10000-3 0 1732  
2 16909 50.0162 313.1889 0010955 268.6628 91.2950 12.44401240143389  
NOAA 10  
1 16969U 89289.08244792 0.00000889 40975-3 0 2921  
2 16969 98.6306 317.2384 0012736 260.1265 99.8481 14.23219669161138  
Meteor 2-15  
1 17290U 89291.73030082 0.00000294 25510-3 0 2983  
2 17290 82.4641 54.6804 0012031 280.7903 79.1923 13.83772683140700  
MOS-1  
1 17527U 87 18 A 89288.97220687 .00000369 00000-0 30007-3 0 2839  
2 17527 99.1381 359.3331 0000930 104.3121 255.8188 13.94854976135211  
GOES 7  
1 17561U 87 22 A 89290.19963302 -.00000107 00000-0 00000 0 0 3532  
2 17561 0.0121 176.9980 0005197 4.0274 178.9989 1.00269209 2984  
Kvant

1 17845U 89290.92961903 0.00041660 57084-3 0 8893  
 2 17845 51.6163 107.2705 0018187 224.9073 126.2250 15.56762040146581  
 DMSP B5D2-3  
 1 18123U 89289.47141448 .00000013 00000-0 16587-4 0 1351  
 2 18123 98.8200 118.3438 0014717 359.6246 0.7002 14.13606391119966  
 RS-10/11  
 1 18129U 89292.00727045 0.00000337 36013-3 0 9130  
 2 18129 82.9250 146.7145 0013144 70.2758 289.9835 13.72015667116379  
 Cosmos 1867  
 1 18187U 87 60 A 89289.86157731 -.00000137 00000-0 -35654-4 0 9787  
 2 18187 65.0144 42.9363 0017213 253.2930 106.6248 14.29425032118517  
 Meteor 2-16  
 1 18312U 89289.04341866 0.00000219 18868-3 0 3262  
 2 18312 82.5548 123.7953 0011206 215.0952 144.9469 13.83530056109228  
 Meteor 2-17  
 1 18820U 89291.63719085 0.00000502 44017-3 0 1635  
 2 18820 82.5467 182.4509 0015807 286.6569 73.2857 13.84226716 86764  
 DMSP B5D2-4  
 1 18822U 89289.47683401 .00001119 00000-0 53342-3 0 1051  
 2 18822 98.6753 168.1458 0005783 255.2850 104.7556 14.20975480 88222  
 AO-13  
 1 19216U 89280.07958878 0.00000494 37172+0 0 491  
 2 19216 57.1615 187.6673 6809834 212.8443 75.8148 2.09699553 10086  
 OKEAN 1  
 1 19274U 88 56 A 89289.94692387 .00004747 00000-0 69254-3 0 5294  
 2 19274 82.5203 24.0028 0022480 192.6528 167.4116 14.75449093 69030  
 Meteor 3-2  
 1 19336U 89291.88617644 0.00000391 10000-2 0 2847  
 2 19336 82.5408 88.1558 0016012 193.1386 166.9299 13.16861916 59195  
 NOAA 11  
 1 19531U 89290.16015581 0.00001098 62903-3 0 1480  
 2 19531 98.9494 233.6665 0011169 247.9737 112.0248 14.11209560 54671  
 TDRS 2  
 1 19548U 88 91 B 89289.40608440 .00000131 00000-0 99999-4 0 440  
 2 19548 0.0185 271.0855 0003683 283.8308 165.1032 1.00274067 3001  
 Cosmos 2001  
 1 19796U 89289.44653937 -.00000984 10193-1 0 2347  
 2 19796 62.8754 124.7934 7211591 319.4305 4.9260 2.00664964 4919  
 GPS-0014  
 1 19802U 89281.68171902 0.00000016 10000-3 0 544  
 2 19802 55.0882 207.3326 0063992 158.0327 202.2596 2.00559422 4704  
 Meteor 2-18  
 1 19851U 89288.87081498 0.00000117 10000-3 0 829  
 2 19851 82.5198 63.1027 0013798 336.8654 23.1890 13.83848453 31779  
 TDRS 3  
 1 19883U 89 21 B 89283.06291794 -.00000224 00000-0 99999-4 0 323  
 2 19883 0.2003 21.0944 0237947 103.6208 238.8355 1.00264044 1374  
 GPS-0013

1	20061U			89280.87090057	- .00000030		0	355
2	20061	54.6429	26.0899	0082887	167.3155	192.9165	2.00568920	2430
1989 059A								
1	20149U			89278.04998095	0.00000135		13598-3 0	419
2	20149	82.9399	35.3073	0033253	77.6848	282.8026	13.72435355	9842
GPS-0015								
1	20185U	89 64 A		89289.81659672	0.00000015	00000-0	99999-4 0	203
2	20185	54.9606	207.9099	0025466	138.9915	221.2270	2.00572510	5815
Progress M								
1	20191U	89 66 A		89289.77729390	.00043418	00000-0	50857-3 0	531
2	20191	51.6260	113.0520	0014937	122.0712	238.1017	15.60955047	8547
1989 067A								
1	20193U			89270.07015316	- .00000195		10000-3 0	84
2	20193	0.0915	274.6644	0002178	230.9138	214.3921	1.00259990	309
1989 067B								
1	20194U			89271.08542268	0.00377454	40599-4	14920-2 0	437
2	20194	26.7067	268.3099	0114214	148.0929	212.6614	15.75899851	4889
1989 067C								
1	20195U			89266.75503446	0.00000661		10559-3 0	235
2	20195	23.2948	130.2409	7340528	196.6115	111.7074	2.22251302	598
Cosmos 2037								
1	20196U			89274.66879707	- .00000111		-77540-3 0	449
2	20196	73.5661	299.8346	0026255	226.2381	133.6497	12.40435505	4302
1989 068B								
1	20197U			89271.27536897	- .00000007		0	80
2	20197	73.5678	304.3743	0024860	231.5958	128.2853	12.40689206	3880
GMS-4								
1	20217U			89268.32911771	- .00000088		10000-3 0	133
2	20217	1.6381	283.1443	0016084	262.1178	96.9063	1.00266823	207
Soyuz TM-8								
1	20218U	89 71 A		89289.84123953	.00045768	00000-0	53537-3 0	479
2	20218	51.6203	112.7316	0015198	135.5982	224.1919	15.60962274	6400
1989 070B								
1	20230U			89281.14783252	0.00025402		36974-2 0	283
2	20230	28.5780	306.7099	7396837	198.2548	104.7424	2.15322956	5982
Cosmos 2038								
1	20232U			89281.75302871	0.00000004		0	173
2	20232	82.5760	151.8987	0012169	336.4613	23.5922	12.65098274	3070
Cosmos 2039								
1	20233U			89281.73787093	0.00000004		0	119
2	20233	82.5823	151.9023	0015723	329.1459	30.8712	12.65887701	3078
Cosmos 2040								
1	20234U			89281.72800311	0.00000004		0	129
2	20234	82.5882	152.0261	0003943	108.7809	251.3714	12.62282515	3061
Cosmos 2041								
1	20235U			89281.68521416	0.00000004		0	132
2	20235	82.5862	151.9837	0009334	343.6430	16.4359	12.64510596	3078
Cosmos 2042								

1	20236U		89281.69740463	0.000000004		0	139
2	20236	82.5840	151.9910	0005700	336.7975	23.2859	12.63874149
Cosmos 2043							
1	20237U		89281.71244403	0.000000004		0	125
2	20237	82.5791	151.9895	0002540	20.7682	339.3512	12.63091374
1989 074G							
1	20238U		89281.70542533	0.000000004		0	119
2	20238	82.5945	152.2587	0040583	149.1863	211.1618	12.55208456
1989 077A							
1	20253U		89290.84195113	- .00000158		10000-3	0
2	20253	4.9866	306.0703	0001781	320.9865	39.0162	1.00246537
1989 077B							
1	20254U		89290.02606997	0.00094099	23383-4	38666-2	0
2	20254	28.5225	310.1596	7217586	193.1347	124.2870	2.40008101
Molniya1-76							
1	20255U		89290.72652900	0.00000162		89639-3	0
2	20255	62.8011	172.7806	7357306	288.1991	9.5924	2.00700411
1989 078B							
1	20256U		89292.33760483	0.01734158	38434-4	15319-2	0
2	20256	62.8214	94.3750	0157106	125.5638	236.0677	15.91910279
1989 078C							
1	20257U		89292.34396191	0.02126237	38324-4	13779-2	0
2	20257	62.8249	94.3463	0156525	120.8509	240.9645	15.95574927
1989 078D							
1	20258U		89289.09227802	0.00000130		49089-3	0
2	20258	62.8097	172.8854	7315012	288.1583	9.8158	2.06171626
Cosmos 2046							
1	20259U		89291.74301370	0.00017823		29730-3	0
2	20259	65.0336	215.2248	0009421	270.1380	89.9035	15.52036321
InterCos 24							
1	20261U		89291.76173899	0.00004759		15001-2	0
2	20261	82.6005	21.6892	1264175	163.6476	200.9537	12.42532885
1989 080C							
1	20262U		89291.75907025	0.00002246		70484-3	0
2	20262	82.6006	21.6872	1263876	163.6372	200.9789	12.42631662
Gorizont 19							
1	20263U		89291.41941616	- .00000257		10000-3	0
2	20263	1.4127	275.9841	0002357	302.8729	55.6848	1.00287260
1989 081D							
1	20266U		89289.38265415	- .00000320		10000-3	0
2	20266	1.4209	276.0434	0032752	308.5196	50.3836	1.00609906
Cosmos 2047							
1	20279U		89292.08171326	0.01017581	28537-4	33114-3	0
2	20279	67.1226	170.8638	0090802	80.1989	281.0468	16.15721560
Maigon-2							
1	20281U		89291.76108725	0.00006049		18991-2	0
2	20281	82.5994	21.6864	1264613	163.6585	200.9484	12.42586672
1989 083A							

1	20292U		89292.21844854	-.00008170		-16240-4 0	109
2	20292	62.8144	164.5160	0089876	63.0632	297.8771 15.91361594	266
1989 083B							
1	20293U		89292.14263472	0.01649883	23763-2	13708-2 0	56
2	20293	62.8000	164.7107	0006016	310.3456	49.7336 16.14115477	251
1989 083C							
1	20294U		89290.96417205	0.01408787	14751-2	14558-2 0	24
2	20294	62.8044	169.4304	0008886	259.8309	100.1383 16.10636997	66
1989 084C							
1	20299U		89292.01107198	0.00021833		10968-1 0	25
2	20299	34.1976	146.5604	7096981	3.0959	359.7752 2.49421090	05

--

Dr TS Kelso	Asst Professor of Space Operations
tkelso@blackbird.afit.af.mil	Air Force Institute of Technology

-----

Date: Sat, 21 Oct 89 17:14:11 EDT  
 From: tkelso@afit-ab.arpa (TS Kelso)  
 Subject: NASA Prediction Bulletins: Space Shuttle

The most current orbital elements from the NASA Prediction Bulletins are carried on the Celestial RCP/M, (513) 427-0674, and are updated several times weekly. Documentation and tracking software are also available on this system. As a service to the satellite user community, the most current elements for the current shuttle mission are provided below. The Celestial RCP/M may be accessed 24 hours/day at 300, 1200, or 2400 baud using 8 data bits, 1 stop bit, no parity.

STS-34

1	20297U	89 84 A	89293.96344341	-.00055380	000000-0	-22396-3 0	128
2	20297	34.3203	133.0132	0025467	214.7398	145.1998 15.84902906	368

--

Dr TS Kelso	Asst Professor of Space Operations
tkelso@blackbird.afit.af.mil	Air Force Institute of Technology

-----

End of INFO-HAMS Digest V89 Issue #790  
 \*\*\*\*\*